

CLAIMS

1. A bearing unit that supports a shaft in a rotatable manner, comprising:

a shaft including an exposed end, an inner end having a small external diameter provided opposite to said exposed end, and a stepped middle portion having a small external diameter formed at a position between said exposed end and said inner end;

a retention member which exposes said exposed end of said shaft to the outside through a gap and has a seamless structure;

a bearing disposed inside said retention member, which has a first dynamic pressure generating groove on said exposed end side and second dynamic pressure generating groove on said inner end side formed on an inner circumferential surface facing said shaft and which supports said shaft in a rotatable manner in the radial direction;

a thrust bearing formed inside said retention member, which supports said inner end of said shaft in a rotatable manner in the thrust direction; and

lubricant in said retention member, which is filled between said shaft, said radial bearing and said thrust bearing; wherein

the length m of said inner end of said shaft in the direction of the shaft is shorter than the length n in the direction of the shaft of the part between the outer

surface of said retention member and said stepped middle portion of said shaft.

2. A bearing unit according to claim 1, wherein said inner end is a diminishing tapered portion or a stepped portion having a small external diameter.

3. A bearing unit according to claim 2, wherein the external diameter D of said inner end is larger than the external diameter d of said stepped middle portion.

4. A bearing unit according to claim 3, wherein said stepped middle portion is a stepped portion formed such that the peripheral portion of said shaft facing said first dynamic pressure generating groove becomes smaller on said exposed end side.

5. A bearing unit according to claim 1, wherein said first and second dynamic pressure generating grooves are herringbone grooves, and the inflow angle α of said first dynamic pressure generating groove is larger than the inflow angle β of said second dynamic pressure generating groove.

6. A rotary drive apparatus having a bearing unit which supports a shaft in a rotatable manner, comprising:

a shaft including an exposed end, an inner end of a small external diameter provided opposite to said exposed end, and a stepped middle portion formed at a position between said exposed end and said inner end;

a retention member that exposes said exposed end of said shaft to the outside through a gap and has a

seamless structure;

a bearing disposed inside said retention member, which has a first dynamic pressure generating groove on said exposed end side and second dynamic pressure generating groove on said inner end side formed on an inner circumferential surface facing said shaft and which supports said shaft in a rotatable manner in the radial direction;

a thrust bearing formed inside said retention member, which supports said inner end of said shaft in a rotatable manner in the thrust direction; and

lubricant in said retention member, which is filled between said shaft, said radial bearing and said thrust bearing; wherein

the length m of said inner end of said shaft in the direction of the shaft is shorter than the length n in the direction of the shaft of the part between the outer surface of said retention member and said stepped middle portion of said shaft.